

CLAIMS

What is claimed is:

1. A method for forming an electrically conductive composite panel,
5 comprising:
 using a composite preform for forming at least a portion of said
 composite panel;
 disposing an electrically conductive thread through at least a portion of
 a total thickness of said composite preform; and
10 arranging said thread such that said thread forms an electrically
 conductive grid over at least a portion of said composite preform.
2. The method of claim 1, wherein said electrically conductive thread is
 stitched to said composite preform.
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3. The method of claim 1, wherein the step of disposing an electrically
 conductive thread comprises disposing a metallic thread throughout said
 portion of said composite preform.
- 20 4. The method of claim 1, further comprising disposing an electrically
 non-conductive, liquid-crystal polymer thread throughout at least a portion of
 said composite preform.
- 25 5. The method of claim 1, wherein the step of disposing said
 electrically conductive thread comprises stitching said electrically conductive
 thread completely through a thickness of said composite preform.

6. A method for forming an electrically conductive composite panel, comprising:

5 using a composite preform for forming at least a portion of said composite panel;

stitching said composite preform with an electrically conductive thread such that said stitching penetrates at least partially through a thickness of said composite preform; and

10 arranging said stitching such that said stitching forms an electrically conductive grid over at least a portion of said composite preform.

7. The method of claim 6, wherein said stitching comprises stitching said composite preform with a metallic thread.

15 8. The method of claim 6, further comprising stitching said composite preform with a non-conductive, liquid-crystal polymer thread.

9. The method of claim 6, wherein said stitching is performed to completely penetrate opposing surfaces of said composite preform.

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10. A method for dispersing an electrical charge from a lightning strike over a composite body panel of an aircraft, comprising:

5 stitching said composite body panel with an electrically conductive thread such that said stitching forms an electrically conductive grid over at least a portion of said composite body panel; and

using said electrically conductive grid to channel said electrical charge into said composite body panel to thereby disperse and absorb said electrical charge.

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11. The method of claim 10, wherein said step of stitching comprises stitching said composite body panel during a manufacture of said composite body panel with a metallic thread.

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12. The method of claim 10, further comprising stitching said composite body panel with a non-conductive, polymer thread.

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13. The method of claim 10, wherein said step of stitching comprises stitching said composite body panel such that said electrically conductive thread extends through opposing surfaces of said composite body panel.

14. A method of dissipating electrical energy impinging a composite panel, comprising:

5 forming an electrically conductive grid on said composite panel with a metallic stitching; and

applying said metallic stitching such that said stitching penetrates through at least a portion of a thickness of said composite panel; and

using said metallic stitching to help distribute and dissipate said electrical energy over a significant portion of said composite panel.

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15. The method of claim 14, wherein applying said metallic stitching comprises applying said metallic stitching such that said metallic stitching extends through an entire thickness of said composite panel and through opposing surfaces of said composite panel.

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16. The method of claim 14, further comprising applying an electrically non-conductive stitching to said composite panel.

17. The method of claim 14, further comprising stitching said composite panel with an electrically non-conductive, polymer thread.

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18. The method of claim 14, wherein applying said metallic stitching comprises applying said metallic stitching in a generally uniform pattern over said composite panel.

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19. The method of claim 17, further comprising stitching said composite panel with said electrically non-conductive, polymer thread in a generally uniform pattern.

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20. The method of claim 19, further comprising stitching said electrically non-conductive polymer in a pattern so as to overlap said metallic stitching.

21. A method of forming a composite panel able to dissipate electrical energy impinging thereon, comprising:

stitching said composite panel with an electrically conductive material
5 such that said electrically conductive material extends at least partially through a thickness of said composite panel and forms a first grid on said composite panel; and

stitching said composite panel with an electrically non-conductive material that extends through at least a portion of said thickness of said
10 composite panel and forms a second grid on said composite panel.

22. The method of claim 21, wherein the step of stitching said composite panel with said electrically non-conductive material comprise stitching said composite panel with a polymer thread.

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23. The method of claim 21, wherein the step of stitching said composite panel with said electrically conductive material comprises stitching said composite panel with a metallic thread.

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